THE

BOSTON MEDICAL AND SURGICAL JOURNAL.

VOL. LX. THURSDAY, MARCH 3, 1859. No. 5.

LEUKOSIN.

A NEW SUBSTANCE FOUND IN THE BLOOD OF LEUKÆMIA. ALSO A DESCRIPTION OF ANOTHER CRYSTALLINE BODY FOUND IN THE VOMITUS.

[Read before the Boston Society for Medical Observation, and communicated to the Boston Medical and Surgical Journal.]

BY JAMES C. WHITE, M.D.

DURING the present winter two cases of leukämia, or leucocythemia, have been observed in this city. One of these has been fully reported to a meeting of the Medical Improvement Society by Dr. H. J. Bigelow. The second occurred at the Massachusetts General Hospital, under the care of Dr. H. I. Bowditch, and will be noticed by him at a future meeting of the same Society. Dr. Ellis made the *post-mortem* examination in this latter case, and gave me the blood to analyze. Leaving to him, therefore, the complete description of its pathological condition, which corresponds exactly to that usually met with in this disease, I shall confine my remarks merely to the chemical changes noticed in this and similar instances.

As long ago as 1845, Rudolph Virchow examined a body and found the liver, spleen and lymphatic glands enlarged, and at the same time the blood changed in a manner, being composed, in fact, to a large extent, of the colorless corpuscles. With that admirable sagacity peculiar to the man, he saw at once that this was something very different from those cases described as pyamia by previous observers, and, to distinguish it, called the disease leukämia. During the next four years he discovered three other cases, which he published from time to time, and in which he insisted upon this unnoticed connection between the enlargement of the blood-glands and the characteristic excess of white corpuscles in the blood, urging the German physicians to increased attention to this disease. It was likewise in 1845 that Bennett observed and described "a case of hypertrophy of the spleen and liver, in which death took place from suppuration of the blood." Of the real nature of this case, however, he was so profoundly unsuspicious that he even labored

to deny the true theory of the disease, and said, "with regard to the colorless corpuscles of the blood, we know of no instance where they existed in the amount, or presented the appearance described." It was not till six years afterward, during which time Virchow had been deeply engaged in observing and publishing facts which corroborated his original opinion, and not until his views had been generally recognized and adopted, throughout Germany at least, that Bennett appears in public, and describes this same disease, in an analysis of cases, under the name leucocythemia. He would have us give up the original name of leukämia, or "white blood," which should always remain associated with the labors of the great discoverer of the disease, because, he says, the blood, when drawn from the arm, is not white, and adopt the name leucocythemia, or white-cell blood.

Now Virchow objects to any such change, because the blood, after death, is really marked by white patches, and Bennett's name is equally a misnomer, inasmuch as cases occur where no white cells are found, and only nuclei or naked kernels are present. The objection can also be raised against it that all normal blood is white-cell blood. The name leukämia was in fact first given in order to prove that blood may have a yellowish-white appearance, like pus, without being pus. When, then, all the credit of the discovery of this disease is given to Bennett, we cannot wonder that Virchow writes as follows: "It is very strange that there is still any question as to priority. When one has been obliged for more than four years, without support, and almost without recognition, both to write and to speak over and over again for the introduction of a new truth in pathology; when one has been obliged from the very first to deny the suppurative character of this change in the blood, in opposition to the views of well-known observers, and especially Bennett, it might seem that the matter was clear enough." With the Dublin *Medical Press*, he wonders, then, at "this free and easy appropriation of other men's intellectual products." Let us, then, not rob this greatest of modern pathologists, to whom we owe so much, of the smallest mite of merit so justly due him.

The chemical analysis of the blood is, under the most favorable and normal conditions, a difficult and unsatisfactory matter; for authorities still differ as to what is serum and what plasma, and different chemists give us quite different results. It is with much circumspection, then, that we should receive the quantitative analysis quoted by Bennett in his monograph on this disease; for very little blood could be drawn from the patients while living, and after death the relative proportions of the fluid and solid properties change rapidly. Moreover, but few examinations have been made, too few for us to draw from them any just conclusion. We may, however, safely infer from the light specific gravity uniformly observed (ranging from 1036 to 1049, while the average of nor-

mal blood is 1055), that the volume of *water* is increased, and the solid matter diminished. This at first sight seems hardly probable, when we remember the enormous amount of coagula found distending the heart and vessels after death, but at the same time it proves that the colorless corpuscles must contain a relatively trifling amount of solid matter. With the decrease of the red corpuscles the *iron* is also found to be proportionally diminished. According to the analysis quoted by Bennett, the *fibrine* in this disease is considerably increased; but more reliable investigations show that this substance, as well as the *albumen* and the *salts* of the serum, remain in their relatively normal proportion.

By far the best analysis yet made of the blood in leukämia is that of Scherer, who had previously discovered the presence of hypozanthin in the spleen. He obtained the following results from the examination of the blood of a subject dissected by Virchow himself.

Quantitative.

Water,	791.7				
Solid matter,	208.3	Organic constituents,	197.300		
		Inorganic "	11.084	Iron,	0.296
				Earthy phosphates,	0.596

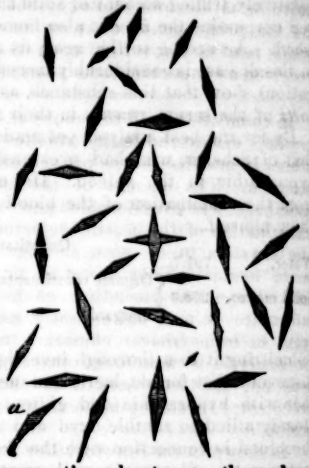
Submitting it to a thorough investigation, he made the interesting discovery that formic, lactic and acetic acids were present, together with hypozanthin and gluten. Hypozanthin is a substance closely allied to zanthic oxyd and uric acid, and its presence in the blood in connection with the frequent urinary deposit of the latter in this disease is well worthy of note, and may prove a valuable diagnostic sign. It is with reference to these important discoveries of Scherer that I have brought this subject before the Society, in order to make known the presence of another new principle in the blood of leukämia.

The specimen given me for examination was of a dirty reddish-brown color, and had a conserve-like density, the upper parts of the coagula being in spots marked by white concretions of the colorless corpuscles. It was very slightly acid, and had a fishy odor, although no decomposition had taken place. On microscopic examination, in addition to the usual appearance of red and colorless corpuscles, &c., numerous minute crystals were noticed, such as I had never seen before. In the blood removed from the cavities of the heart, the large vessels, and from the spleen, they were very abundant, while the portal circulation contained fewer. In a large exudation, or abscess, situated in the cellular tissue beneath the left axilla, none were observed, although in other respects its microscopic characteristics closely resembled those of the blood. The crystals, unfortunately, are of the same specific weight as the white corpuscles, and therefore cannot be isolated for a separate analysis.

They are colorless, transparent, and appear to be faintly-mark-

ed, elongated, rhombic octahedra, with sharp outlines in profile. In a few instances they are united by pairs, the long axes crossing each other at right angles. Many of them differ from the true type of crystallization, being extremely elongated, and exhibiting incurved faces and such irregularities of form, as to prove their organic nature. (Fig. 1.) This supposition is entirely confirmed by the result of incineration, to which on being submitted no residue was left. In sulphuric and hydrochloric acids they are quickly dissolved. In a solution of caustic potash they are readily soluble, but no ropiness is produced by its addition to the blood, as would be the case if pus were present. In acetic acid they are also soluble, though slowly. In concentrated nitric acid they are, strange to say, completely insoluble, even when heated, and assume a faint yellow hue. By its action their acute angles are sometimes bent upon themselves, as seen in Fig. 1, *a*. In cold and hot water they are alike insoluble, and they remain unaffected by alcohol, ether, benzole and ammonia. Judging by their behavior in the presence of the above re-agents, it is plain they are the crystals of a substance which must range itself in the class of neutral principles, and as nothing similar has ever been found either in healthy or abnormal blood, or in any part of the animal economy, so far as the latest chemical reports show, I propose for it the name of leukosin. This title seems appropriate, both on account of the color of the crystals and the disease in which they were discovered.

Fig. 1.



The blood of leukämia is very like the natural condition of this fluid in the splenic system. Scherer first discovered in the spleen the very substances which he afterward demonstrated in this disease, and the crystals often found in this organ, lozenge shapes of a reddish-yellow color, and described by many observers, Becquerel tells us were present in great abundance in the coagula removed from the heart in a case of leukämia. That the spleen is not the sole cause of the changes in the blood, is shown by the facts, that this organ is often otherwise affected without any consequent similar change, and that in some cases of leukämia it is found in a normal condition. The other blood or lymph glands, on the con-

trary, are always found diseased. At all events, the presence of so much abnormal matter in the blood, penetrating every atom of the human frame, must be sufficiently deleterious to account for the peculiar symptoms of the disease, though it is evident that in the present state of our knowledge we are far from being able to solve its mysterious etiology; but whether the state of the blood be the prime cause of it, or merely its result, all observations which tend to throw light upon its chemical composition must be received as important facts bearing upon its future solution.

In connection with the above case, I would describe here other crystals discovered in the vomitus of a patient of Dr. Gould, in whom hæmatemesis was present as a symptom of cancer of the stomach. The amount of the hæmorrhage was considerable; and on examination of the matter rejected, the crystals to be seen in Fig. 2 were found. They were at first looked upon as hæmatine, as this substance is not unfrequently met with in hæmorrhagic effusions, but on analysis it was found that this was not the case, and that they were some substance hitherto undescribed.

FIG. 2.

As shown in the drawing, they are sections of a hexagonal prism, some faces of which are irregularly elongated. By transmitted light they are of a reddish-brown color, while in reflected light they show a straw-yellow tinge. From the variety of form they assume, and their peculiar color, I presumed an organic composition, but, to my surprise, they retained their shape, sharply defined, even when submitted to a heat sufficient to melt glass. At a low temperature the coloring matter disappeared, without blackening or smoke. In nitric and hydrochloric acids they are slowly soluble, without effervescence. When placed in concentrated sulphuric acid, they retain for a long time their outline unchanged, but the coloring matter gradually disappears, leaving a granular appearance in their centre. (Fig. 2, *a*.) Potash also dissolves them, though slowly. By acetic acid and ether they are unaffected. From the effect of heat, as above applied, we see that we have here a difficultly fusible, inorganic base united with some unknown organic material, either mechanically or chemically. It would seem that the latter only plays the part of shadow, for after its entire decomposition by heat and acid, the

substance remains unchanged. Further analysis, as conducted by Dr. Bacon, showed that this matter was lime, but in what form it is impossible to ascertain. They may be crystals of some unknown salt of lime, into which the coloring matter of the blood has been taken up, just as frequently results when crystallization occurs in colored solutions of various sorts; or it may be the sole chemical compound of the base, a minute quantity only being sufficient to determine their formation, so little, in fact, that their shape and structure remain unchanged when it is driven off.

In so complex a mixture as is present in that laboratory, the stomach, it is difficult to say what compounds may not be formed, and especially so in a pathological case like the following. Here, in addition to the secretions from the healthy portions of the cavity, were mingled the purulent discharges from the ulcerating surfaces, large quantities of blood poured out from corroded vessels, food, medicine, and masses of penicilium and torula, and the spores of sarcina ventriculi, disposing the whole to fermentation. The food consisted exclusively of milk, and the only drug given was nitrate of bismuth. But the crystals separating from this maze of matter are nothing we might expect to result from its decomposition. They are neither lactate, butyrate, oxalate, carbonate, nor a fatty salt of lime, nor do they at all correspond to the re-actions of hæmatine. The vomitus itself had that pungent acid character so often present in this disease.

The only other instance on record of crystals occurring in the fluid of the stomach, is one described by Neale in the *Medical Times*, in which case uric acid [?] was found. In some vomitus which I examined not long since, oxalate of lime in its usual octahedral form was present, and must have been formed in the stomach, for no food containing it could have been eaten for a long time previously. Crystals of hæmatoidin have been observed by Rokitansky in cases of so-called "infaret," or apoplectic deposits in the walls of the stomach, but their occurrence in its cavity, or the presence of crystals tinged by the coloring matter of the blood, is something hitherto unobserved.

TOBACCO SMOKE IN HYDROPHOBIA.

[Communicated for the Boston Medical and Surgical Journal.]

MESSRS. EDITORS,—I am induced to recur to the subject of hydrophobia once more in your pages, from reading in *Braithwaite*, No. 38, an account of a case of poisoning by strychnia, treated by Dr. T. O'Reilly, of St. Louis, Mo. The chief points of interest in the case are its presenting a striking resemblance to a case of hydrophobia previously witnessed by Dr. O., and its cure by nicotine. It may also be mentioned incidentally, that the writer seems to be impressed with the conviction that his is the first case of the

successful treatment of poisoning by strychnia with nicotine, and gives credit for its suggestion to the experiments of Dr. Haughton, of Dublin.

In the Appendix to my pamphlet on the Nervous System is some account of a case of poisoning by the same substance, treated by me, in 1845, with tobacco *smoke* per rectum, with an equally successful result, and without any of the untoward symptoms following, which attended his case. It was the happy effects of this agent *so applied*, together with the strong resemblance in the symptoms then witnessed by me with those I had seen described as pertaining to rabies, that induced me to recommend it as the remedy that promised most in the latter disease. The conviction has forced itself on my mind, both by reading and conversation with other physicians, that the profession is not alive to the great value of this remedy, and its safety compared with the infusion. Whether its volatilization in conjunction with free carbon modifies its effects, as animal charcoal is known to do with other poisons, or it loses some deleterious quality by the intense heat to which it has been exposed, or whatever may be the explanation, most certain it is, that its action is as unlike that of the infusion, as the effects of any two medicines that spring from a common origin, and possess certain properties in common, can well be. It would perhaps be saying too much, to declare that they differed as much as calomel and corrosive sublimate; but I can affirm with confidence that during the last twenty years I have made use of tobacco smoke upward of twenty times, in the way mentioned above, without having once witnessed the severe prostrating effects mentioned by authors as due to tobacco *per se*, while their inferences have been drawn from observing the consequences of the infusion. In ileus, intussusception, and strangulated hernia, I have uniformly found it manageable and successful. In one case, supposed to be the former, after inflammation had progressed so far as to subsequently give rise to an abscess which opened externally, and finally communicated with the bowels, exhausting life, the patient exclaimed, in the midst of the operation, that he felt the wind pass through the seat of the stricture, having before had a sensation of its passing down to that spot, while nothing could be felt beyond. This was followed in about twelve hours by a free movement of the bowels, although cathartics of turpentine and oil, injections, bloodletting, calomel and opium, &c., had been freely employed during the week before, without success. In this instance, as in every other in which I have used it, not a sign of collapse, not even sickness at the stomach, followed its exhibition.

Dr. Paine, in his defence of bloodletting (*vide Principles of Medicine*, page 716, first edition), quotes Dr. Jacob Bigelow as countenancing the use of tobacco in hydrophobia, and although he himself considers any experiment justifiable in this disorder, seems hardly to acquiesce in the latter's qualified approval of it. Neither

gentleman discriminates between the modes of preparation. Dr. Paine has done good service in resisting the inroads of mechanical and chemical science on medicine, as well as in vindicating determining principles, in opposition to empiricism; but his zeal for bloodletting has carried him too far in condemnation of opium, tobacco, and the class of narcotics generally. Even in strangulated hernia he would discard tobacco altogether. "We possess," says he, "in tartarized antimony, or even in lobelia, far better and safer means for establishing a relaxation of the muscular system." Now I do not hesitate to assert from experience, that neither agent is so safe and efficient as tobacco smoke; and in reply to his statement that surgeons had greatly forsaken it as an enema in strangulated hernia, I venture to say that they had better continue it in the form mentioned, and forsake the operation; for, in nine cases out of ten where the operation is resorted to, it is an unnecessary procedure. When I commenced practice in this locality, now twenty years since, I had occasion to see, in consultation with two others, a case of strangulated hernia of over a week's standing, in which, from the age of the patient and the late period of the disease, no active interference was thought best, and the patient died. The next year I saw another, which was operated on. Since then, though I have attended others fully as severe, I think, none have required an operation. Whenever bloodletting, nauseating medicines, and large doses of opium failed, recourse has been had to this remedy with uniform success.

It was remarked by the senior physician in consultation in the first case (Dr. John Manning, who had then successfully practised more than fifty years on this Cape), that he was not sure that tobacco smoke would not help the patient, even now. This remark, although it bore no fruit then, nor in the next subsequent case, made an impression on my mind which I trust has not been without a good influence on my patients. Place this by the side of the statement of Dr. Bigelow, which Dr. Paine quotes and contradicts, viz., "At the present day, tobacco does not seem to be extensively in use, having passed into neglect, rather because more fashionable remedies have superseded it than because it has really been weighed and found wanting," and we shall have reason to believe that all of the innovations of late years have not been improvements. Among the different remedies of the materia medica, there is generally one agent that stands a head and shoulders above the others in its capability of fulfilling the general indication of that class. Opium is the prince of anodynes, rhubarb is chief among cathartics, ipecac ditto among emetics; and so will it be found that no remedy is worth a trial with tobacco, for the relief of spasm, general or local. I do not mean to assert that the smoke cannot be pushed so far as to occasion collapse; but if it is introduced slowly, as it must be when blown from a common pipe through a gum-elastic tube into the colon, it may be continued until

a manifest effect is produced, and that effect will be, according to my experience, relief of the urgent symptoms, without a sign of prostration worth mentioning. A second instance is now recorded in which it has relieved symptoms like those of hydrophobia; and when it is considered that the deaths which have resulted of late from this disease have been brought about rather by the remedies administered than by its own violence, at least in some instances, the physician who may be called to treat it need have no fear of increasing the mortality by the use of this potent agent, even if he is justified in neglecting to avail himself of its powers.

Rockport, Feb. 15, 1859. B. HASKELL.

THE CASE OF EPHRAIM BUCK, M.D.

BY JAMES AYER, M.D.

[Read before the Suffolk District Medical Society, and communicated for the Boston Med. and Surg. Journal.]

No minutes were taken at the daily visits, and the following statements are drawn from memory. The most important facts are stated accurately;—some minutiæ, both of symptoms and treatment, have doubtless escaped recollection.

On Monday eve, Dec. 13th, 1858, Dr. Ayer was first called to visit Dr. Buck. He had been ill since the preceding Friday, though he had visited patients on that and the following day. On Saturday he took his chamber and prescribed for himself. The original attack, he described, as one of acute gastritis, with severe pain of the epigastrium, and over the margin of the right lower ribs, with constant inclination to bilious vomiting. His treatment, he remarked, was an heroic one for an old man, namely, four leeches to epigastrium, and pil. hydrarg. followed by a mild cathartic. A blister was applied after the leeches, and an alterative course of calomel and opium commenced.

At the first visit he appeared to be very comfortable, and free from pain. Skin moderately cool, thin bilious fur on the tongue, pulse 85 per minute, irritable or sharp, with mercurial breath, and tenderness of the gums. There was anorexia, with acidity of the primæ viæ, and troublesome flatulency. The bowels had been freely moved; the skin was jaundiced throughout, particularly dark in the face; the urine was scanty but of natural color; the prepuce and scrotum highly œdematous—this affection he had been subject to. At an earlier period, the patient remarked that the urine had been extremely high colored. There was little or no appetite; occasional febrile exacerbations and great restlessness at night. Arrowroot gruel and tea constituted his diet. His mind was clear, spirits cheerful, and he gave a minute history of all his symptoms and treatment. The acute stage, he judged, had passed off favorably; and the only question in his mind was, whether the vital forces would rally sufficiently to effect a healthy

reaction. For several weeks before the attack, his appetite had been variable. By advice of a medical friend, he had abstained, for a short time, from animal food, but was soon compelled to return to it. The doctor was also taking very moderate quantities of whiskey and water, with gruel, milk and tea for diet.

These, in brief, were the symptoms and general aspect of the case at the first visit. A discontinuance of the alteratives was advised, and improvement of the diet. Milk and limewater, two parts of the former to one of the latter, scalded together, was added. Very little medication, at this period, was employed. The bowels were kept soluble—a Dover's powder at night, and three or four grains acet. potass. in syrup. acaciæ every three hours, acted favorably on the kidneys.

In a few days, the patient desired that Dr. C. E. Buckingham might be associated with Dr. Ayer in attendance. Both physicians met at the noon visit, and Dr. A. made the morning and evening call (being near) throughout the illness.

Anasarca of the feet and legs soon began to appear—gradually extending up to the abdomen. The urinary secretion diminished, depositing a heavy lateritious sediment. The alvine discharges were bilious. Dyspnœa began to be felt—the patient desired the head and shoulders elevated. The prepuce and scrotum were highly œdematous. The pulse became more frequent—90 to 100 per minute—frequently intermitting from 4 to 16 beats per minute in the right wrist, at the same time the pulsation was perfectly regular in the left wrist. This irregularity was repeatedly noticed by us. Except a corresponding irregularity of the heart's action, nothing special was revealed to the ear about the heart—no decided bruit—at this period. After the first week, there was very decided and general nervous irritability, almost constant restlessness, tossing of the head, and change of position. This condition, Dr. Buck remarked, was natural to him when sick—an hereditary tendency in his family.

A variety of potent diuretics were employed, followed by no permanent increase of urine. When tested the urine was found to have a specific gravity of 1012°—did not coagulate when boiled with nitric acid, and litmus paper instantly changed to a deep red when immersed in it. It was tested once only. The patient generally lay upon his back, but could easily lie on either side.

The œdema of the lower extremities and abdomen gradually increased, and the prepuce and scrotum became greatly distended. Œdema of the base of the left lung manifested itself, afterward extending to the right. There was very decided dulness over the right and left lower chest. The action of the heart continued regular for the most part, aside from the intermissions, but labored in its functions, with a distant sound, and dulness on percussion. We suspected effusion within the pericardium. The œdema of the lungs apparently changed as the right or left leg was most

swollen. This coincidence was noticed by us for several successive days.

The symptoms enumerated continued to increase up to the close of the second week. Meanwhile the vital forces were steadily diminishing, and delirium, which had gradually been stealing on the patient, became more decided. It was not such as to prevent the patient's realizing, to a great extent, his true condition, and the operation of remedies.

The bowels became costive, and ext. elaterii was exhibited—effectually removing the constipation, and temporarily relieving the œdema by watery discharges, and slightly increased flow of urine.

After the first week, a dry, irritative cough, which had been troublesome, at intervals, for a year or more, and which the patient had considered asthmatic, made its appearance. Subsequently the physical signs appeared, to a limited extent, of pneumonia at the base of the left lung; afterwards the same was observed at the base of the right lung—yet so modified by the œdematous condition of the organ, and the general prostration of the system, as to forbid, in the opinion of his physicians, direct intervention by active treatment. In the early stages, Dover's powder was given at night—afterwards morphia, valerian and Hoffman's anodyne—all of which soon ceased to produce the desired effect. Extract of belladonna, 1-6 of a grain in solution, was given every fourth hour, and as the delirium increased it was repeated every three hours. This remedy was continued, with apparent good effect, to the last. Beef-tea was freely taken—the patient preferring milk scalded, with it, as it improved its flavor. Cider, various wines, gin, brandy, Scotch ale, &c., were tried, but no stimulant proved so beneficial as Bourbon whiskey. The spirits, the doctor thoroughly disliked—even loathed—but thought the prescription necessary.

At the close of the first week, the attending physicians felt compelled to give an unfavorable prognosis; an opinion which the judgment of the patient had already anticipated, and fully concurred in. The third, or last week, was marked by a steady increase of nearly all the unfavorable symptoms enumerated. The pulse became more feeble and intermittent, rarely less than 100 per minute; anasarca increasing, heart's action more labored, dyspnœa increased, delirium more continuous, temperature of skin lower, urine more scanty, and cough increasing, with expectoration of tenacious bloody sputa. The anorexia and flatulence fortunately had disappeared. The patient insisted on rising to the chair for evacuations, and his strength of resolution enabled him to do, with assistance, what his muscular ability failed to accomplish. Thus he continued without very decided change, more delirious and more exhausted to the last. On New-Year's-day eve, he was visited at 8 o'clock, and found sitting in an easy chair, delirious and

feeble, but answering a direct question correctly. He was assisted to the bed quite exhausted. At 8¾ o'clock the next morning, Jan. 2d, before the morning visit, in a semi-unconscious state, he expired, after an illness of three weeks and a day, aged 72 years and 10 days.

Dr. Cleaveland Buck, of Maine, a brother of the deceased, and an active, healthy physician of 70 years, was present and advised with us, for several days during our attendance. Dr. H. G. Clark, of this city, repeatedly joined our consultations.

From this desultory history of the case, it will readily be perceived what were our opinions, and the grounds for them in the premises. When we consider the ripe age, the wear and tear of a naturally robust constitution incident to a long and active professional life (25 years in the country and nearly 22 in the city), that his health had gradually declined for the year past, especially since last spring, and finally an acute disease sufficient to tax the stamina of the young and vigorous—these accumulated burdens must have proved too heavy even for his originally powerful frame. He had carefully calculated all the phases of his state, and kept a perfect idea of the treatment and symptoms almost to the last. That same uprightness and precision which characterized him when in health, and will be remembered by the Fellows of this Society as specially prominent in the discharge of his duties as our late President, continued unabated through his last sickness. "For myself," said Dr. Buck, "if it be God's will to remove me, I have no desire to recover."

Autopsy.—An autopsy was made by Calvin Ellis, M.D., January 3d, at 11 o'clock, A.M., 23 hours after death. There were present Doctors Channing, J. Homans, J. Ware, Jeffries, Stedman, C. D. Homans, Mighill and Ayer.

General aspect. Rigor mortis sufficiently well marked; adipose tissue slightly wasted.

On removing the sternum, 3 pints of serous fluid was found in the right pleural cavity, and one pint in the left. The apex of the right lung contained an apoplectic nodule, or mass, nearly black, and three inches in diameter; a small nodule of the same character was found in the middle lobe, and a third appeared in the lower part of the inferior lobe—these masses were firmer than hepatization. The left lung was partially compressed; its upper lobe œdematous, but otherwise healthy. There was general hypertrophy of the heart—more than twice the normal size—weight 32 ounces. The walls of the left auricle were considerably distended, and its appendix was filled with old and firm coagula. The semilunar valves were atheromatous, and slightly ossified at their bases, but not sufficiently so to interfere materially with their functions. The base of the aorta was slightly ossified, and partially atheromatous. The abdominal cavity contained 3 pints of yellow serum. The stomach had no ingesta; its mucous membrane was highly inject-

ed, but otherwise healthy. The intestines appeared healthy—but were not particularly examined. The liver was of normal size, but dark-colored, and unusually firm. The same was true of the spleen; its fibrous capsule was more dense, in parts, than usual. Connected with the right kidney, and originating from the substance of the organ, and upward of two inches in diameter, was a cyst containing two ounces of transparent serum. The left kidney had numerous depressions on its surface, from atrophy. On incision, the cortical substance of both kidneys was found to be granular, quite thin, and remarkably well defined—and more fibrous than usual. Considerable fat, in small globules, was noticed—one or two of the tubuli were crowded with them.

The bladder and prostate gland were healthy. The brain, by request of the family, was not examined.

Bibliographical Notices.

Contributions to Practical Surgery and Surgical Pathology. By J. M. Carnochan, Professor of Surgery in the New York Medical College, Surgeon-in-chief to the State Emigrants' Hospital, etc. With Illustrations drawn from Nature. Philadelphia; Lindsay & Blakiston. 1858. Part 2.

This second fasciculus of Professor Carnochan's work contains a Case of Exsection of the Entire Ulna; Remarks on Neuralgia of the Face—with a Case; Exsection of the Trunk of the Second Branch of the Fifth pair of Nerves, beyond the Ganglion of Meckel, for severe Neuralgia of the Face; with three Cases.

There are also two excellent Plates, one representing an exsected ulna, the other, portions of exsected nerves. The latter are highly colored—we presume correctly.

We have perused the contents of "Part Two" with great interest; and particularly the remarkable case of Forbes, upon whom so many and such severe operations were performed for the relief of persistent facial neuralgia. The instance may safely be termed unparalleled. Prof. Carnochan says that he entered minutely into "the details of this case, on account of its remarkable character—remarkable on the one hand for its duration and protracted course, and, on the other, for the perseverance and courage displayed on the part of the patient. The facts, also, which were developed during the different stages of the treatment, led me to project an operation for the cure of neuralgia of the second branch of the fifth pair of nerves, which is novel, and which I believe to be the only one capable of curing this affection.

"This operation consists in exsecting the trunk of the second branch of the fifth pair, beyond the ganglion of Meckel, and, at the same time, removing this ganglion, or insulating it and its branches from the encephalon."

We think it will be conceded by all who read the account of Forbes's case, that a most extraordinary amount of courage and resolution were demanded on the patient's part to enable him to undergo all that he did. The extreme severity of his painful disease could alone have forced him to endure such heroic surgery. And we must

add, that great credit redounds to Prof. Carnochan for his perseverance, ingenuity and faithful management under such a discouraging aspect of all the circumstances. The patient, although at last greatly relieved and able to attend to his business again, is not considered cured. Prof. Carnochan thinks it "not improbable that he will be liable at times to be attacked with paroxysms of his disease." But the success attained is very remarkable, and has restored a man wholly incapacitated for his daily duties, and in constant agony, to his occupations, and to comfort again—a result amply justifying all the proceedings.

Too much can hardly be said in praise of the typography and illustrations of this work. We observe with great satisfaction the care which has been lavished upon its preparation, and the attention paid to its really beautiful dress. To both Author and Publishers the acknowledgments of the profession are due. We hope we shall not be deemed hypercritical if we mention one or two things, in this connection, which we have noticed on careful examination. Where so much excellence exists, little flaws strike the curious eye the more unpleasantly. Thus, we would rather not have met with that commingling of Latin and English in the narration of the medicines used, which is always so undesirable, and, in compound formulæ, incorrect and preposterous. We therefore would have preferred that the following sentence should have been *all* English—since the Latin (and abbreviated Latin, too) seems not needed and looks incongruous:—"Iod. ferri and iod. potassii were at times substituted for the quinia *—*—" (p. 34). And again, the same sort of arrangement,—"*—* the constitution was supported by the internal exhibition of quinia, carb. ferri. precip., iodide of potassium, syr. iodide of iron, sarsaparilla, infusion of prunus Virginiana wine, porter, generous diet, &c.—*—*" (p. 35).

Whilst, for the most part, the fasciculus we are noticing is free from typographical errors—thus showing in the proof-reading the same care which has evidently been bestowed upon the work throughout—it is a pity that even *one* should be allowed to mar the handsome pages. Where so small a portion of text is issued at one time, it would seem easy to avoid these blemishes altogether. We remark "facia" for fascia, on page 37, 9th line from the top; and, on page 45, 5th line from the top, "*périodique*" for *périodiques*—one letter being an essential omission. On the same page, four lines from the bottom, we notice "*médicine*" for *médecine*. These small slips are, we repeat, the more prominent because of the correctness of the majority of the text and the elegant appearance of the pages generally.

We may properly question whether the expression "flow of venous hæmorrhage" is a correct one; we think, flow of venous *blood* would be better (p. 38).

The exclusive use of *chloroform* in all his operations is another prominent feature in Prof. Carnochan's reports. We take this occasion to again express our surprise at the pertinacity with which many—we believe most—of our New York and Philadelphia brethren cling to the use of chloroform, and discard ether. Their reasons do not sufficiently appear—although, very likely, if the use of ether had been a more southern discovery, we should hear less of its potent and dangerous *congener*, chloroform. The exclusive use of chloroform at the South is continued in spite of sufficient warning given by their own journals as well as others. For instance, *The Medical News and Li-*

brary for February, 1859, published in Philadelphia, reprints the startling summary of deaths from chloroform, prepared by R. M. Glover, M.D., F.R.S.E., and contained in the *Lancet* of October 30th, 1858. In this account, besides fifty fatal cases of chloroformization taken from the late Dr. Snow's work, several others of the same sort are mentioned—and the occurrence of such, it is well known, is shockingly frequent—yet, on the American principle, "*go ahead*," the dangerous agent is, in many places, preferred to the entirely safe one! In one instance, Prof. Carnochan states the very slow recovery of a patient from the influence of chloroform—"the pulse remaining below 50 for some hours:"—an agreeable result, truly!

We look forward with pleasure to the continuation of this fine work, which we commend to the careful attention of the profession, and especially to practical surgeons.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, MARCH 3, 1859.

QUARTERLY REPORT OF THE CITY PHYSICIAN.

The office of Physician to a large city is one involving duties of the greatest importance, and which must trench largely upon the time and best attention of the incumbent. Both the profession and the community are, or should be, deeply interested in whatever concerns the conservation of the public health; and the course of the health officers is therefore likely to be watched with jealous scrutiny. We think there will be a general concurrence with us when we say that Dr. Clark's administration of the high trust committed to him has ever been characterized by faithfulness, conscientiousness, and the manifestation of full capability. His Reports should be read and pondered by our citizens—they are not documents to be made waste-paper of.

The present Report bears date January, 1859, and was "ordered to be printed," January 24th, 1859, and we fully intended to have sooner noticed it. It presents several points of unusual interest, and we will advert to them in the order of their occurrence.

The number of persons vaccinated at the City Physician's Office "since the last return," is 383, and during the year 1,625. Certificates of examination, attesting previous vaccination, were furnished to 257 children during the quarter, and to 597 during the year. Vaccine virus has been supplied to physicians gratuitously, 127 times in the quarter, and 268 times during the year.

Specifying the births and deaths at the Jail as being each three—a somewhat remarkable coincidence—Dr. Clark next refers to the unusually healthy condition of the city throughout the past year. We may here add, that the same is still true; for the week ending February 12th, *only* 44 *deaths* were registered—an unusually small number. The Report goes on to state that there were a few cases of yellow fever observed in the city last summer, "all of which were directly traceable to the shipping arriving here from southern ports. The number of fatal cases in the city proper was only four, and there was no tendency in the disease to spread." When we reflect upon our own immunity from this dreadful scourge of our southern cities,

and upon our comparative exemption from cholera during its visitations to this continent, we surely have every reason for the heartiest thankfulness. With such blessings in view, we should make up our minds to inhale any amount of the dreaded and malediction-laden east winds of our spring-time, with content and even gratitude!

Dr. Clark quotes largely from the opinions of Dr. Jeffries, upon quarantine regulations, "as expressed to his Honor the Mayor, after a visit to the Quarantine Station, with the Committee of External Health." The advantages of the position which Boston has assumed in regard to quarantine, and the excellence of the regulations which have been adopted, are well set forth in this connection: and the contrast presented by our quiet condition and prospects, when compared with the New York performances, is striking and suggestive. Dr. Jeffries concluded the remarks above referred to by saying that, "we are indebted in this city, more to the internal regulations promoting cleanliness and sobriety, for the health of our citizens and the exemption of the city from fatal epidemics, than to any restrictive laws of quarantine." Dr. Clark expresses a hope, which we cordially echo, that one result of the deliberations of the "Quarantine and Sanitary Convention" may be to bring about the adoption, "by that body, of a code of quarantine laws more like our own and more in consonance with what we believe to be a more enlightened and advanced state of sanitary science."

We next have Dr. Clark's account of his supervision of the sewerage, and the statement that the reason of deficient working of many of the sewer outlets being now known, "it is to be hoped that at some early period such radical measures as are necessary will be adopted." The earlier the better, say we; and we most heartily concur with the City Physician in the statement which follows our last quotation, and which runs thus. "For it is the proper care of the drainage, upon which, more than any other, perhaps more than all other sanitary measures, depend the safety and health of the inhabitants of any city." The "nuisances" of last summer, so widely and loudly complained of throughout the entire section of the city lying near the foot of Mt. Vernon Street, are next referred to. We devoted no inconsiderable space to the consideration of this topic at the time when it was most odoriferous and manifest! Not only did our noses, in common with those of the afflicted residents in the immediate vicinity of the sources of filth, bear unwilling yet truthful testimony, but our eyes read the black and green writing of sulphuretted hydrogen upon door-plates and other outward metallic fixtures, to our daily disgust and horror. Dr. Clark thinks that the "defective structure of the drain" in the neighborhood of Mt. Vernon Street, "was only one of the contributing causes" of the nuisance; "and that the state of transition between the free occupation and flow of tide-water, and the intrusion upon the domain of the sea by the structures of man, is the efficient and controlling cause, and that therefore the inconveniences, though great, can only be wholly removed by the completion of changes which are necessarily the work of time." We trust that the "transition state" may be rapidly completed!

Passing over the remainder of Dr. Clark's excellent remarks upon sewage and upon the sanitary regulations desirable in dwelling houses, we come to the portion of the Report which sets forth the advantages which would accrue to the city from the erection and occupation of a City Hospital. Having ourselves, at various times, advocated similar

views, we merely commend the subject anew to the careful consideration of the City Government and to the judgment of an enlightened public—having no doubt that a favorable verdict will finally be rendered.

The City Council are next appropriately congratulated upon the final settlement of the intra-mural interment question—"ample and economical provision" having been "made by the city at Mount Hope Cemetery, where those whose means are not large, as well as others, may, without unnecessary expense or sacrifice of feeling, bury their dead; thus removing the last obstruction to the discontinuance of a practice fraught with so much discomfort and danger to the living."

The "Appendix" to the Report contains Dr. Clark's remarks relative to the execution of Magee, the convict, and in connection with the newspaper comments and "extraordinary strictures" of the London *Lancet* thereupon. The account of the autopsy, and also the remarks made upon it at the meeting of the Boston Society for Medical Improvement, held June 28th, 1858, are given, together with the truly scurrilous language which the *Lancet* descended to use in reference to the report. We entirely agree with Dr. Clark, that the course of the English medical journal shows both malice, unfairness and extreme ignorance. In addition to these interesting qualities, the editors of the *Lancet* have seen fit to italicize a portion of the report, without saying that the italics were their own and not its author's—and which procedure well shows "how ingeniously an extract, apparently fairly made, may be unfairly used." (*Report.*) Moreover, "the *Lancet* does not emphasize or even refer to the material fact, that *the motions* (of Magee's heart) *were not interrupted by a division of the spinal cord*, because that would have disproved its charge. It also ignores the fact that my *theoretical opinion*, which it tortures into an implied censure of my friend, Dr. Ellis, had no reference whatever to the heart's motion, but was suggested upon entirely different grounds." (*Idem.*)

After quoting a portion of the editorial article published in this JOURNAL relative to this case, and making full reference to various physiological authorities upon the point in question, Dr. Clark sums up as follows:

"1. That the death was complete before the body was opened.

"2. That the motions of the auricle were automatic, and not vital.

"3. That the same motions would have continued for a certain length of time if the heart had been entirely removed from the body.

"These cases, and others which might be quoted, must have escaped the observation of the editors of the *Lancet*, or they would never have ventured the opinion that the *post-mortem* examination, as it has been proved to be, was a '*vivisection*;' or if they do not confess their *ignorance* on this point, they must plead guilty to the charge of wilfully perverting 'a plain, unvarnished tale' for the purpose of throwing an undeserved odium upon the medical profession of this city. The whole temper of the article, and the subsequent conduct of the editors in neglecting to take the slightest notice, so far, of an explanatory note addressed in respectful terms to them more than three months ago, by Dr. Ellis, than whom a more candid and humane gentleman does not exist, evince anything but the '*entente cordiale*' which should characterize the intercourse between members, however distant geographically, of a profession so noble as that of medicine, or of that courtesy which we have a right to expect from the conductors of a scientific journal which has a wide circulation in this country as well as Great Britain."

On the last page of the Report, we have a faithful representation of the "House of Reception" in North Grove Street, together with a "Ground Plan" of the same. The editors of the *Lancet*, in speaking

of Magee's autopsy, characterized it as "An execution in the House," and threw out the infamous insinuation that the *post-mortem* examination was made in a clandestine manner—"*privately* or *surreptitiously*," as Dr. Clark very properly adds in a foot-note, being the substance of their charge. They could not well have made a more egregious blunder, or a more calumnious statement; and for their due enlightenment we hope they will look at the engraving, without obliquity of vision, and console themselves with the information that the autopsy, or, as they are pleased to term it, the "execution," was done in the City House of Reception, and not "in the house of a medical man." The *Lancet* is welcome to all the satisfaction it can derive from what it has published in reference to this matter, and we are willing to abide the decision of the medical and lay public as respects its course.

We again commend the entire Report to the careful perusal, not only of those who are interested in the sanitary welfare of the people, but of all who may have been misled by the unjust and ignorant statements of the *Lancet*, or by such accounts as have mistakenly appeared in certain of our own daily papers.

PALMER'S PATENT ARM AND HAND—(See Advertising Sheet.)

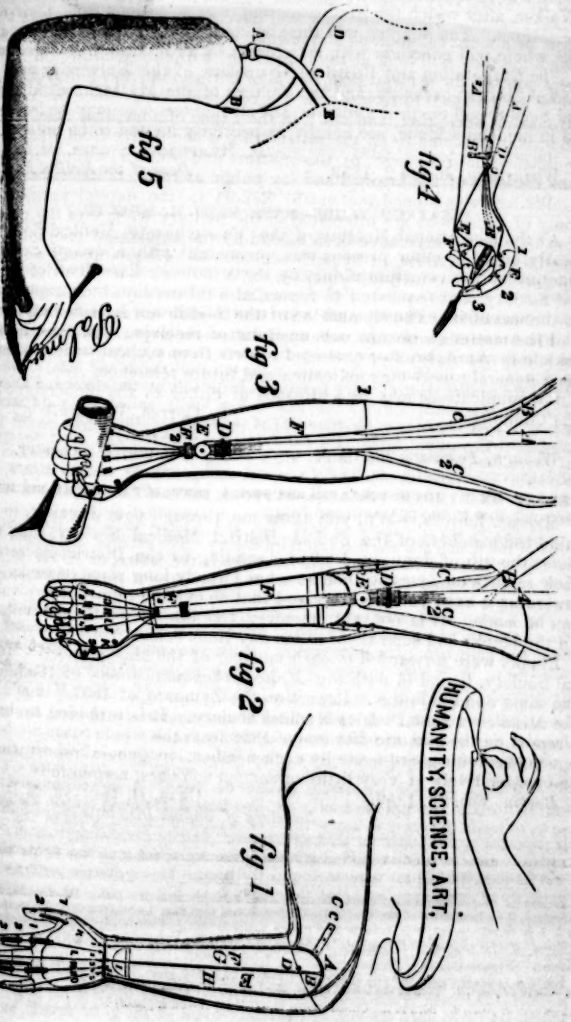
Fig. 1 represents an arm to be applied above the elbow. The articulation A B is a ball and socket, connected by the steel plates C C, and turning upon the pinion D. The function of the bones in the forearm (radius and ulna) are imitated by the conical shaft E, which terminates in a ball at the elbow and wrist J J. The wrist is articulated with a ball and socket firmly united by catgut tendons F G H, tensely drawn over the convexity of the shaft E at the elbow. It has every motion of the natural wrist. The hand rotates on the forearm, being susceptible of pronation and supination, or any angle or degree of flexion and extension desirable. The extensor tendons K L M N O, acting with the springs 1, 2, 3, 4, 5, open the hand. The detached ball and socket joints of the thumb and fingers are indicated by the figs. 1, 2, and 1, 2, 3.

The fingers are articulated on steel rods and pinions imitating the bones, as seen in the thumb and the first and third fingers. The exterior is brought to a perfect imitation of the natural arm (as shown in the outline, or in Fig. 5), by a soft elastic substance, which rotates around the forearm, preserving anatomical symmetry in every position. It is covered with a delicate skin.

Fig. 2 is the same arm extended, with the fingers semi-flexed. The belt A attaches the arm to the body. The small belt C C 2, is connected by a tendon to a clasp and pully D E. The great muscle F is the continuity of the flexor tendons G H I J K. These tendons pass sinuously over pulleys, or fixed sheaves, 1, 2, 3, 4, 5, through the hand, to the end of the fingers and thumb. The principles of the lever and pulley are thus *combined*, and the *maximum power* retained at all angles of flexion or extension. A slight motion of the shoulders, with extension of the forearm, produces an incredible grasp, as seen in Fig. 3.

An object of any shape, such as a pen, a fork, or an apple, is held with facility. By a slight motion of the shoulders, the belt A B causes the great muscle F and its tendons to contract *powerfully*, closing the hand. A movement easily and naturally made, actuates the tendon C C, and fastens the clasp D upon the muscle so as to retain the grasp in any position or motion of the arm when in use. This is regarded as invaluable for holding reins in *driving*, or carrying articles with *safety*. An easy counter motion *unfastens the clasp*, relaxing the flexor muscle and its tendons, and the extensors open the hand. This principle performs most perfectly in an arm applied below the elbow, as in Fig. 3. In this are seen the belt A B C, the great muscle F and its tendons, the clasp and pulley D E, as in Fig. 2. A fixed eyelet, F 2, clasps the great muscle, F, and thus guides the flexor tendons of the fingers. The line 1 shows the union of the natural with the artificial arm. Fig. 4 shows a hand holding a fork. The tendon A A 2 passes through the clasp B and around the pulley C to the side of the clasp D, where it *fastens* or *unfastens* the clasp by movements before explained. The joints of the fingers and thumb are flexed upon the fork by powerful tension of the great muscle and its

tendons. The sinuosity of the tendons passing over the pulleys, or sheaves, EEE, shows the new and useful principle of effectually combining the lever and pulley to gain the *utmost power, strength, elasticity,* and *adaptability* to the various uses of an artificial arm and hand. They are easily adjusted by the wearer.



MASSACHUSETTS MEDICAL COLLEGE.

The Annual Commencement for the conferring of medical degrees will take place at the College on Wednesday, March 9th. The exercises will commence at 11 o'clock, A.M., with a prayer by President Walker, after which the graduates will read selections from their dissertations. The degrees will then be conferred by the President, and the whole will conclude with an address by Prof. Henry J. Bigelow.

The Corporation and Board of Overseers of the University will be present on the occasion, and the Fellows of the Massachusetts Medical Society, all medical students, and all persons who may be interested in medical science, are hereby respectfully invited to be present.

D. Humphreys Storer, M.D.
Wednesday, March 2, 1859. *Dean of the Medical Faculty.*

VERATRUM VIRIDE—MASS. MEDICAL SOCIETY.

At the last Annual Meeting of the Massachusetts Medical Society, nearly every member present was presented with a quantity of the tincture of the veratrum viride, by the Middlesex East District Medical Society, and requested to report, at a future day, their experience in the use of it. The Committee of the Middlesex East Society, who had the matter in charge, are desirous of receiving, previous to the middle of April, brief or extended reports from each, in order to make up a general report for publication and future reference.

Communications may be addressed to either of the undersigned—the Committee.

E. Cutter, Woburn.
T. Rickard, "
Woburn, February 22, 1859. W. Ingalls, Winchester.

REPORT ON ZYMOTIC DISEASES—SUFFOLK DISTRICT MEDICAL SOCIETY.

Messrs. Editors,—Will you allow me, through your Journal, to remind the members of the Suffolk District Medical Society, that the time (the 9th of January, 1859) for sending to the District Secretary their reports on Zymotic Diseases, has already long since passed. So few returns have yet been received that no general report of any value can be made. It is not yet, however, too late, if gentlemen will fill up the blanks and send them to me any time before April 15th.

Blanks were forwarded to each member of the Massachusetts Medical Society, bound in with the *Medical Communications* of 1858. In the same number is the "Report on the Zymoses of 1857," made by the Middlesex East District Medical Society. It is proposed to have a report on the zymotic diseases of 1858 from the whole State Society, but unless returns are made by each member, any general report would be comparatively of very little value.

Yours, respectfully,
Boston, Feb. 23, 1859. Chas. D. Homans, M.D.,
Secretary of Suffolk District Medical Society.

Communications Received.—Vesico-Vaginal Fistula.—Parasitical Disease of the Scalp.—"The Woman who lives without Eating."

Deaths in Boston for the week ending Saturday noon, February 26th, 63. Males, 38—Females, 25.—Apoplexy, 1—inflammation of the bowels. 1—inflammation of the brain, 1—consumption, 20—croup, 2—dropsy, 3—dropsy in the head, 2—infantile diseases, 6—puerperal, 1—diabetes, 1—erysipelas, 1—scarlet fever, 2—typhoid fever, 1—disease of the heart, 1—intemperance, 1—jaundice, 1—inflammation of the lungs, 7—disease of the liver, 1—marasmus, 1—old age, 2—palsy, 1—pleurisy, 1—scrofula, 1—teething, 3—tumor (in stomach), 1.

Under 5 years, 20—between 5 and 20 years, 2—between 20 and 40 years, 18—between 40 and 60 years, 14—above 60 years, 9. Born in the United States, 43—Ireland, 17—other places, 3.